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EXAMINER

MULLIS, JEFFREY C

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 04/24/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/981,155

Applicant(s)

ARMENTROUT ET AL.

Examiner

Jeffrey C. Mullis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 and 23-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Applicant's election with traverse of claims 1-22, the species of polyethylene glycol, hard segment polyesters and terephthalic acid end capping agent in Paper No. 6 is acknowledged. The traversal is on the ground(s) that it would be less burdensome on applicants in the Office for all claims to be searched and examined together. This is not found persuasive because as set out in the previous Office action, the search for the inventions are not co-extensive. Therefore undue burden of search would exist.

The requirement is still deemed proper and is therefore made FINAL.

Claims 11-13 are withdrawn from consideration as being drawn to a non-elected species while claims 23-42 are withdrawn from consideration as being drawn to a non-elected invention.

Claims 1-10 and 14-22 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

The term "molecular weight" or "average molecular weight" is unclear when unqualified as to the type of molecular weight.

Note Nikitin page 64 at the first complete paragraph which discloses that for cellulose "or any other high polymer" the difference between number average and weight average molecular weights "may be very considerable". Note also "Mandelkern" in

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the section entitled "Preparation" starting on page 19 who discusses the types of mechanisms involved in polymerization and who discloses at the first complete paragraph on page 23 that:

"From the simple considerations of the two basic polymerization mechanisms we have found that the polymer molecules formed will not have all the same molecular weight or chain length. Usually, the broad molecular weight distributions result. The constitution of the system must then be described either by a set of different average molecular weights or by the distribution function itself (emphasis added). Many properties of polymeric systems depend on the details of the molecular weight distribution. The properties of chemically identical systems can be quite different depending upon whether this distribution is narrow or broad."

Note also the first sentence of the second paragraph on page 38 which discloses that "(t)he weight average will always be greater than the number average".

Note also Fried who discloses in Section 1.3.1 on page 16 that:

"A typical synthetic polymer sample contains chains with a wide distribution of chain lengths. This distribution is seldom symmetric and contains the

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molecules of very high molecular weight. An illustration of a representative distribution is shown in Figure 1.8. The exact breadth of the molecular weight distribution depends on the specific conditions of polymerization as will be described in Chapter 2. For example the polymerization of some polyolefins results in a molecular weight distribution that is extremely broad, while it is possible to polymerize some polymers, such as polystyrene with nearly monodispersed distributions under laboratory conditions. Therefore it is necessary to define an average molecular weight to characterize an individual sample as detailed in the following section (all emphasis added)".

Note the first paragraph of page 18 which discloses "A measure of the breadth of the molecular weight distribution is given by the ratios of molecular weight averages. For this purpose the most commonly used ratio is  $M_w/M_n$ , which is called the *polydispersity index* or PDI. PDI's of commercial polymers vary widely. For example commercial grades of polystyrene with  $M_n$  over 100,000 have polydispersity indices between 2 and 5 while polyethylene synthesized in the

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presence of a stereospecific catalyst may have a PDI as high as 30."

The Examiner points out that the weight average molecular weight of the above referred to polystyrene would be 2-5 times higher than its number average and the weight average molecular weight of the referred to polyethylene will be 30 times its number average molecular weight.

It is unclear what is embraced by applicants' "acid end-capping reagent" given that the term is not art recognized and furthermore can be interpreted as being a reagent which is acidic and capable of end capping but which does not necessarily introduce acidic functionalities in an end capping unit or can be interpreted as a material which introduces acidic units and an end unit. It is noted that the various examples of applicants' end capping agents do not appear to be acidic such as anhydrides or acids and do not even appear to necessarily introduce acidic functionality in an end unit such as the acid anhydrides and acid chlorides.

It is not clear if applicants are claiming a composition containing a mixture of end capping reagents and electrostatic dissipating block copolymer or are claiming compositions containing electrostatic dissipating block copolymers which necessarily have chemically combined end capping units in which the end capping unit is the acid end capping reagent (chemically

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combined) with the block copolymer given that the claims recite a composition comprising "A" and "B" where B is merely recited to be a "reagent" and not moiety chemically combined with the electrostatic dissipating block copolymer as an end unit.

At least claim 3 is unclear since the material on which applicants' percentages are based are not stated. For instance, the percentages of the end capping reagent could conceivably be based upon the entire composition or upon the electrostatic dissipating block copolymer etc. as recited in claim 3.

It is not clear what is intended by copolymers of polymers such as rare recited in for instance claim 21 where each contains the phrase "copolymers of polyvinyl chloride". The term "copolymer" in this context implies that an entire polymer is polymerized, i.e. block copolymers are implied but given that applicants' specification does not disclose block copolymers of polyvinyl chloride, those skilled in the art would question whether this is what is intended.

Claim 21 is rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as filed does not disclose how to produce polymers of polymers such as "copolymers of polyvinyl chloride".

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It is suggested that the term "copolymers of polyvinyl chloride" be changed to "copolymers of vinyl chloride" if this is what is intended.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) The invention was described in (1) an application for patent, published under Section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.



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Claims 1-10 and 14-22 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McNamara et al. (USP 6,444,758).

McNamara et al. disclose a composition produced by end capping a polyethylene glycol/polyester block copolymer in situ with a fatty acid. Note Example 1 in this regard and that all reagents producing the product including the end capping reagent are introduced together. Since the fatty acid is acidic and is chemically combined as an end unit on the end of the block copolymer, the fatty acid reads on applicants' acid end capping reagent. Furthermore since the BMPA reagent which forms the polyester unit is also present in the polymer, this reagent also reads on applicants' end capping reagent. Note that the block copolymer has an acid number at column 22 line 41 and is therefore acidic. Note that the block copolymers may be blended with materials such as polyesters at column 21 lines 17-21. Since applicants' specification discloses that their hard block may be a polyester and since they block out one of the blocks of McNamara's polyester, it would reasonably appear that the polyester block of McNamara is a hard block. Note that the composition has an antistatic effect. See the Abstract in this regard. While arguably the acid end capping reagent of applicants as defined by applicants or at least as applicants intend to define them may necessarily introduce acidic units as

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an end unit. Note that the paragraph bridging columns 6 and 7 of the patent specifically disclose use of diacids and therefore acidic end unit moieties are contemplated by McNamara although admittedly there are no specific examples of such in the patent.

Product-by-process claims are not rejected using the approach set out in Graham v. Deere. It is applicant's burden to show that there is a non-obvious difference between the product of a product-by-process claim and a prior art product which reasonably appears to be the same or only slightly different whether or not the prior art product is produced in the same manner as the claimed product. Note In re Marosi, 218 USPQ 289, 292-293 (CAFC 1983); In re Brown, 173 USPQ 685 (CCPA 1972) and In re Thorpe, 227 USPQ 964 (CAFC 1985) in this regard.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Arguably, the PMPA as utilized by patentees does not result in a block copolymer as contemplated by applicants. However as set out above, patentees clearly disclose the use of diacids at the paragraph bridging columns 6 and 7 of the patent for use as

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an acid end capping agent and also discloses the use of other acidic materials such as ascorbic acid as a mixture such as possibly contemplated by applicants' claims. Therefore use of such materials would have been obvious to a practitioner having ordinary skill in the art at the time of the invention in the expectation of adequate results based on the disclosure of McNamara absent any showing of surprising or unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Mullis whose telephone number is (703) 308-2820. The examiner can normally be reached on Monday-Friday from 9:30 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on (703) 308-2462. The fax phone number for this Group is before final (703) 872-9310 and after final (703) 8729311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

J. Mullis:cdc

April 23, 2003

Jeffrey Mullis  
Primary Examiner  
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